



Job Loss Analysis

ID No:2000205

Status:

Original Date: 08/Nov/2010

Organization:

SBU: GLOBAL MANUFACTURING
 BU: Pascagoula Refinery
 Work Type: Technical (Process Engineering)
 Title (Work Activity): Steam Generator Inspection
 Site/Region: Pascagoula, MS.

Personal Protective Equipment (PPE)	Selected	Comments
Safety Shoes	Y	
Hard Hat	Y	
Safety Glasses	Y	
Fire Resistant Clothing	Y	
Hearing Protection	Y	
Lifeline/Body Harness	Y	
Gloves	Y	
Knee Pads	Y	
Personal Gas Monitor	Y	H2S Monitor
Additional Task Specific PPE		
Other	Y	

Reviewers

Reviewers Name	Position	Date Approved
Anshumali (AEUT)	Process Engineer Team Lead	5/12/2011

Development Team

Development Team Member Name	Primary Contact	Position
Castleberry, Stephanie (SEWX)	Y	Engineer
Kristin Davis (KDBZ)	N	Engineer
Alicia Edgeworth (STOA)	N	Lead
Brad Moore (BMJW)	N	Lead

Job Steps

No	Job Steps	Potential Hazard	Critical Actions
1	Ensure proper PE Inspection Tool Kit.	1. Loss of time if improper tools are not available while performing inspection in steam generator.	1a. Review applicable drawings/inspection sheets to familiarize yourself with the equipment internals. 1b. Tape measure, flashlight (headlamp, bring a backup light), pen and paper, steel rod/hammer, inspection mirror, digital camera (permit may be required, due to equipment not being intrinsically safe), low Chloride paint marker, tool bag, 4oz sample bottle with cap, knee and/or elbow pads.
2	Prepare for entering steam generator.	1. Personal injury due to environment inside the steam generator such as: <ul style="list-style-type: none"> tight spaces which limit mobility elevated temperatures contact with steam generator internals (sharp objects) slippery walking surfaces 	1a. Do not perform inspection if one is experiencing muscular/skeletal strains or sprains that might impede climbing ability. 1b. Hydrate the body well before entering the generator. 1c. Be aware of corroded internals and look for sharp objects. 1d. Scan generator area before moving around. Look for probing TI's, low hanging beams, etc. 1g. Be aware of potential slippery conditions due to wet surfaces or loose debris. NOTE: Reference JLA Control#1101716 (Confined Space Entry) for more specifics regarding confined space entries

3	Steam Generator Initial Inspection.	<p>1. Economic loss (premature S/D, decrease performance, etc) if discovery item was not noted during S/D. If possible, inspect generator prior to cleaning. Consider involving local chemical vendor in initial inspection.</p>	<p>1a. Determine if scale is present. If so, collect samples for (chemical vendor) analysis and label samples with location sample was taken (above water line, bottom north end, on tubes, in blowdown line, etc.) Estimate the amount of scale present (coffee can, 5 gal bucket, etc.). Is intermittent blowdown effectively removing solids? Are the solids evenly built up across bottom of generator or are they collected in a corner away from the intermittent blowdown nozzle?</p> <p>1b. Is separation equipment secure / no loose parts? Is there a demisting device at steam outlet or vortex breaker at blowdown outlets? Are there any deposits on the separation devices, particularly where steam is exiting (demisting device)? Take pictures and collect any deposits for analysis. Label with location sample was taken.</p> <p>1c. Is continuous blowdown line secure, installed properly, and free of deposits? Take note if the blowdown line elbows down or up from its entry point. Some generators will have a blowdown header with holes. The holes should be clear of debris/solids and installed so orientation of holes is pointed up and away from the boiler feed water line if it is located near the blowdown line. Sample any deposits for analysis. Other blowdown lines may be tees which should be oriented horizontally.</p> <p>1d. Is boiler feed water line secure, installed properly, and free of deposits? Are there any signs of corrosion or metal loss in the holes in the feedwater line? Note direction holes are pointing.</p> <p>1e. Is there any corrosion evident in the vessel? Oxygen corrosion (pitting) will normally occur at or just above or below the water line.</p>
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3	Steam Generator Initial Inspection. (cont.)	<p>1. Economic loss (premature S/D, decrease performance, etc) if discovery item was not noted during S/D. If possible, inspect generator prior to cleaning. Consider involving local chemical vendor in initial inspection.</p>	<p>1f. Measure the following:</p> <p>1) Distance of water line (if visible) from bottom of vessel and from a fixed object (blowdown line, separator, etc.) in vessel. The drum should have pacified metal where water sits - gray and powdery covering. Vessel wall above the water line should be redder because of oxidation. Note relationship between height of water line and continuous blowdown line. Blowdown line should be few inches below water line. In generators that have tubes, water line should be above top of tubes. Also, note any unusual signs of water patterns (water swells on sides of vessel) and take pictures.</p> <p>2) Distance of continuous blowdown line from bottom of vessel and from a fixed object. If the blowdown line elbows up or down after entry into the vessel, measure the distance it rises or drops to ensure the blowdown is taken off at the proper level during operation.</p>
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4	Steam Generator Final Inspection.	1. Economic loss (premature S/D, decrease performance, etc) if discovery item was not noted during S/D.	<p>1a. General Condition: Verify generator clean and free of construction debris, hard hats, plywood, rust and other corrosion products. Fasteners tight, internals in place?</p> <p>1b. Demister: Secure in place at steam outlet and without gaps? Proper material for service?</p> <p>1c. Inspect all nozzles including continuous (side of vessel) and intermittent (bottom of vessel) blowdown nozzles, top and bottom taps for sight glass gauges and level devices, boiler feed water makeup line, pressure taps, steam outlet, etc. Bottom level taps are prone to collecting sediment during generator draining.</p> <p>1d. Has sight glass been cleaned and is easily readable?</p> <p>1e. Is continuous blowdown installed per drawing? Many generators have lines that dip down after they enter the vessel. Make sure blowdown line is installed correctly per drawing. Are the holes oriented facing up and away from the boiler feed water line if it is near?</p> <p>1f. Have any corroded areas been repaired?</p>
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